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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/464,362 | 12/15/1999 | SHINICHI KURITA | 3790/USA/AKT | 7438 |

32588 7590 12/18/2002

APPLIED MATERIALS, INC.
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SANTA CLARA, CA 95050

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| EXAMINER |
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MACARTHUR, SYLVIA

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| ART UNIT | PAPER NUMBER |
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1763

DATE MAILED: 12/18/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

Applicant(s) **JF 15**

09/464,362

KURITA ET AL.

Examiner

Art Unit

Sylvia R MacArthur

1763

-- The MAILING DATE of this communication appears in the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2002 and 14 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-30, 32, 38-42 and 98-135 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

- 5) ☒ Claim(s) 106-113 is/are allowed.

- 6) ☒ Claim(s) 22-26, 32, 38, 98-105, 114 and 119-135 is/are rejected.

- 7) ☐ Claim(s) 27-30, 39-42 and 115-118 is/are objected to.

- 8) ☒ Claim(s) 22-26, 32, 38, 98-105, 114 and 119-135 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.

- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)

- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 13, 14.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

- 5) ☐ Notice of Informal Patent Application (PTO-152)

- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 22-26, 32, 48, 98-105, 114, 119-124, 127-130, 132, and 133 are rejected under 35 U.S.C. 102(e) as being anticipated by Rivkin et al (USP 6,270,582).

Rivkin teaches a load lock chamber 108 as illustrated in Fig.4 wherein the load lock chamber comprises a top portion (upper/first support) 194, bottom portion (pedestal, lower/second support). A wafer lift apparatus (elevator) is also provided. A wafer heater (comprising a heating element) is above the wafer and a cooler is located below the wafer. The wafer lift apparatus includes the wafer heater, upper and lower sets of wafer seats 182,184, wafer seat supports 198, a bellows assembly 206,208 (third structure), and a lift mechanism 210. The lift mechanism 210 attaches to the top portion 194 of the load lock chamber 108.

The wafer cooler is built into the load lock chamber bottom portion 196. The load lock chamber is serviced by the transfer chamber 102, the wafer lift apparatus positions the lower wafer seats 184 to receive the processed wafer. The opening (load/unload aperture) opens to permit access. A robot inserts the processed wafer in the middle (transfer aperture therein) of the load lock chamber 108. Rivkin notes that a coolant fluid circulates through the bottom portion 196.

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Rivkin notes that the load lock is vented with helium. He further teaches in col.9 lines 13-40. Fig. 1a illustrates the vacuum processing system 10; the system comprises a transfer system 12, process chambers 14, and load lock chambers 108. The process chambers include RTP chambers, PVD chambers, CVD chambers, etc.

Rivkin discusses that guide rods (pins) are attached to the wafer seats 140,142 and make slidable contact with the top plate 138. Coolant lines 178,180 provide a coolant fluid inlet and outlet.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 125, 126, and 134 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rivkin

The teachings of Rivkin were discussed above.

Rivkin notes that in addition to helium, air (comprising nitrogen) is also used as a cooling fluid.

Air is cheaper and more widely available than pure nitrogen.

Regarding claim 126 the processing parameters such as the pressure of the cooling fluid was not discussed, however, setting the processing parameters to provide optimal results can be done without undue experimentation and are done in the design of semiconductor manufacturing apparatus.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to utilize nitrogen in addition to helium as cooling fluids, and to provide the optimal processing parameters including pressure in order to promote the desired result.

5. Claim 131 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rivkin in view of Edwards et al (USP 5,944,857).

The teachings of Rivkin were discussed above

Rivkin fails to teach more than one robot.

The duplication of parts was held to have been obvious In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). The court held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced.

Similarly, Edwards multiple robots in Fig. 3. One robot 42 transfers the wafers from the cassette to the load lock chamber, and another robot 35 transfers the wafers from load lock chamber to the transfer chambers and into the plurality of process chambers.

The motivation to provide the system of Rivkin with two robots rather than one is to increase wafer throughput.

Thus, it would have been obvious for one of ordinary skill in the art of the claimed invention at the time of the claimed invention to provide more than one robot to increase the number of wafers that can be transfer throughout the processing system.

Allowable Subject Matter

6. Claims 106-113 are allowed.

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7. Claims 27-30,39-42, and 115-118 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not teach nor fairly suggest a middle plate.

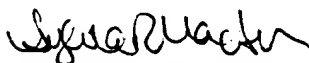
Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R MacArthur whose telephone number is 703-306-5690.

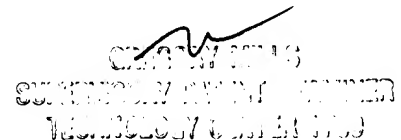
The examiner can normally be reached on M-F during the core hours of 8 a.m. and 2 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9630.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Sylvia R. MacArthur
December 11, 2002



CYNTHIA A. MILLER
TECHNOLOGY CENTER